SHRI YASHWANT SINHA : That was not the question I asked. My question was very different. I wanted to know whether you had received any proposal for foreign collaboration in the small-scale sector. You might have received 20 and you might have approved 2. Out of these two, one may be in the reserved category—the list of items reserved for the small-scale sector—and the other may be in the non-reserved category. That was my question.

SHRI DIPEN GHOSH : The question was addressed to the Prime Minister.

SHRI M. ARUNACHALAM : As far as my knowledge goes, no application is pending with us. No application has come to us so far.

SHRI YASHWANT SINHA : Shall I, therefore, conclude, shall we conclude, that no foreign collaboration proposals relating to the small-scale sector have been received or approved by the Government, despite its declared policy ?

SHRI P. V. NARASIMHA RAO : Please do not conclude that just now. Give me twenty-four hours to give you a full reply. We will find out. It is a matter which can be easily found out.

SHRI N. E. BALARAM : Now it is understandable.

SHRI SUNIL BASU RAY : Mr. Chairman, Sir, in view of the growing sickness of small-scale industries, I would like to know whether the Government is taking any steps to prevent it and then to integrate the production from the small-scale sector with the needs of the big industries and other sectors of the economy.

SHRI M. ARUNACHALAM : Sir, to integrate the large-scale sector with the small-scale sector, recently, we had announced equity participation by the large-scale sector in the small-scale sector—upto 24 per cent. This is in the initial stage. We have to wait and see the results.

Share of R and D in Public and Private Sector

*142. SHRI IQBAL SINGH : †

SHRI SURESH PACHOURI :

Will the PRIME MINISTER be pleased to state :

(a) what is the share of R and D out of the total investment in both public and private sectors;

(b) how this share of R and D in industry compares with those of developed countries; and

(c) the steps taken by Government to increase R and D share in Indian industry ?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY, DEPARTMENT OF ELECTRONICS AND DEPARTMENT OF OCEAN DEVELOPMENT AND MINISTER OF STATE IN THE MINISTRY OF PARLIAMENTARY AFFAIRS (SHRI P. R. KUMARAMANGALAM) : (a) The share of R&D in public and private sector Industry is around 23% of the total national investment in R&D.

(b) In many developed countries, the R&D expenditure spent in industry is in the range of 50-80%.

(c) To encourage R&D in Industry, Government provides industry fiscal incentives of various kinds.

श्री इकबाल सिंह : महोदय, मेरा फर्स्ट सप्लीमेंटरी यह है कि पहले बजट कम था । इस बजट में 113 करोड से 147 करोड बढ़ाया गया है । लेकिन देखना यह है कि इस बजट में किस रेंजिशो मे खर्चा होगा और मैं यह भी जानना चाहता हूं कि पिछले दशक में जो 10 साल में खर्च किया गया है क्या उसी तरह के रिजल्टस इसमें प्राप्त हुए हैं और सेकेन्ड यह भी जानना चाहता हूं कि पंजाब मे पिछले तीन वर्षों में कितना आर. एण्ड डी. पर खर्चा किया गया है ?

† The question was actually asked on the floor of the House by Shri Iqbal Singh.

SHRI P. R. KUMARAMANGALAM : Sir, the question, if I may submit, is limited to the area where we are talking of investment in R&D in both the public and the private sectors. Now the hon. Member has decided to widen the scope and go into the question of total investments in the whole area. He asked the question about the State of Punjab. I do not have the data. I shall give it to him. I only want to inform him that in the area of investment, normally a ratio of 1 : 12 is expected. That is, when you invest a rupee, you expect that the investment of a rupee on R&D should be able to give you Rs. 12 of actual turn-over created out of the investment or the product created out of the investment in R&D. That ratio has been maintained in almost all investments, whether they are private or public or Government-funded investments, and we have been able to keep to it. I shall give him the exact figure of Punjab. I will send it to him because that is really not the scope of the question.

श्री इकबाल सिंह : सेकण्ड सप्लीमेन्टरी मेरा यह है कि सरकार द्वारा आर एंड डी पर किया गया खर्चा किस प्रकार देश की एक्सपोर्ट की क्वालिटी को अच्छा करेगा और भारत को विदेशी बाजार में एक अच्छा स्थान दिलायेगा ? इलेक्ट्रानिक वस्तुयें जो हैं, जो आप बाहर भेजते हैं उसमें जो सामान लगाया जाता है, उसमें जो पुर्जे लगाये जाते हैं वह बाहर के मुल्कों से मंगाये जाते हैं । यह बताया जाये कि यह कब तक कम होगा और कब तक यह अपने देश ही देश में बनना शुरू हो जायेंगे और आर एंड डी में उसकी क्वालिटी कैसे होगी ?

SHRI P. R. KUMARAMANGALAM : Sir, that is a very general question, but I must submit to the hon. Member, through you, that it is not the case that all our export items are based on only imported technology or imported parts. Yes, there is a certain ratio of imports which we are doing in terms of products and going in for manufacture of export goods. As our technological base improves more and more, I should expect that this situation would change and that there would be more and more indigenous components going into manufacture of export items. We have had a reasonably good success in what is called "indigenisation of technology," and that has been our strength. Internationally we are recognised as one of those countries which have a large resource of skilled and trained manpower in science and technology, and I am proud to say that we have done extremely well in indigenisation.

श्री सुरेश पचौरी : माननीय सभापति जी, विकसित देशों में अपने जी.एन.पी. का आर एंड डी पर जो खर्च किया वह 2 से 3 प्रतिशत के बीच किया जब कि भारत ने जो खर्च किया वह 0.9 प्रतिशत किया और उद्योगों में 0.23 प्रतिशत खर्चा आर एंड डी पर किया गया । यदि पर कैपिटा एक्सपेंडीचर हम लें तो भारत में आर एण्ड डी पर खर्चा, यू.एस. डालर में 2.76 है और अधिकांश विकसित देशों में आर एंड डी पर जो खर्चा किया गया वह यू.एस. डालर में 100 से 500 के बीच में है । इसका परिणाम यह है कि भारत में प्रति हजार जनसंख्या के हिसाब से आर एंड डी की गतिविधियों में संलग्न साइंटिस्ट, इंजीनियर्स और टेक्नीशियंस की संख्या को लें तो भारत में यह 0.27 है, कनाडा में 6.50 है और जर्मनी में 4.71 है । इन आंकड़ों से यह स्पष्ट होता है कि भारत में साइंटिस्ट, इंजीनियर्स और टेक्नीशियंस की संख्या आर एंड डी में बहुत कम है । इस कम संख्या को मद्देनजर रखते हुए मैं आपके माध्यम से माननीय मंत्री जी से जानना चाहता हूं कि इस बारे में वे आगे क्या कदम उठाने जा रहे हैं ताकि साइंटिस्ट, इंजीनियर्स और टेक्नीशियन्स जो आर एंड डी के वर्क में संलग्न हैं उनकी संख्या बढ़े, साइंटिस्ट, इंजीनियर्स और टेक्नीशियंस को और सुविधायें प्रदान की जायें और जो विकसित देश हैं क्या उनके साथ आपने कोई विचार-विमर्श किया है ताकि हम वहां की टेक्नोलाजी को भी यहां ला सकें, जो कि प्रधानमंत्री जी की इच्छा है, आर्थिक सुधारों के कार्यक्रम के तहत भारत प्रगति और विकास के दवार पर दस्तक दे सके ? । मेरा आखिरी पाट यह है कि भारत में पर यूनिट खर्चा प्राइवेट सेक्टर में कितना है और

पब्लिक सेक्टर में कितना है ? क्या प्राईवेट सेक्टर में खर्चा बढ़ाने के लिये सरकार के पास कोई योजना है ?

SHRI P. R. KUMARAMANGALAM : Though we have in absolute terms really one of the largest resources—in fact, the third largest resource—in terms of S & T manpower, when it comes to per capita, as the hon. Member has said, it is not really as satisfactory as we would like it to be. We have schemes to encourage scientists and engineers. We call them 'extra-mural' schemes where we have scholarships, where we have fellowships and where we have project finance etc. But in addition to that, we provide other incentives. In fact, in his Budget Speech, hon. Finance Minister specifically said that donations that are given to institutions which are training or developing technical manpower as well as to other educationally high areas of science and technology will have 100 per cent exemption from income-tax as an incentive to ensure that there are contributions to develop manpower. We have also other schemes which we have proposed in the technology policy. We hope once this policy becoms a part of the national concensus and is accepted, we should be able to see that industry participates more and more in the development of skilled manpower.

With regard to the second part of the question, which the hon. Member has raised, I wish to inform him that the ratio which we have in the industry, both in public and private sectors, works out to really about 10.5 per cent, when it comes to the case of public and about....

SHRI JAGESH DESAI : What is the ratio in the case of private sector and what is the ratio in the case of public sector ? Please give the figures separately.

SHRI P. R. KUMARAMANGALAM : I am giving it separately. It is 10.5 in the case of the public sector and if one really looks at it, it is 12.5 per cent in the case of private sector as a percentage of R & D that is exactly being invested at the movement in India in terms of total investment. Their response as per the national average in 1 : 12, where every rupee invested itself produces Rs. 12 of investible turn-over in terms of products from R & D.

SHRI SATISH PRADHAN : I want to ask the hon. Minister through you Sir, whether the research and development facility from the Government will be available to small scale industries also ? If so, what type of arrangement is the Government going to make for it ?

SHRI P. R. KUMARAMANGALAM : Yes, Sir. In fact, there is a certain amount of emphasis for the small-scale sector to have the national research facilities that are there. We have various schemes. In fact, one of the unfortunate situations that exist in the country is that cooperative research has picked up to the extent to which we would like it to pick up. We have certain councils like in the textile area where cooperative research has some products. But so far in the small-scale area, it has not been so successful except in the area of leather, where we have an institution called the Central Leather Research Institute, which is centred in Madras, but has got centres all over the country. They have been able to participate and make use of the small-scale sector. In fact, one of the reasons why our finished leather products have improved in the last few years is the interaction between the small-scale industry and the national labs. We hope the small-scale industries would come forward more and more and participate and interact with our national labs to see that the real R&D is there. Small-scale industries really cannot afford to set up the sort of facilities that are required for R & D.

SHRI TRILOKI NATH CHATURVEDI : I shall like to know the share of the universities in the allocation of R & D. What are the first six universities which might have received from the Department of Science and Technology assistance in this regard, apart from what may have been extended through the UGC or the Ministry of Human Resource Development ? What is the share each of these universities in Research and Development ?

SHRI P. R. KUMARAMANGALAM : I am sorry, Sir. I would really require

a separate notice to give the details. But if the hon. Member wants, I will send it to him. I do not have the data available with me in so far as the share of the universities in R & D is concerned, because one would really have to get the information also from the H.R.D. Ministry. In so far as the Eighth Five Year Plan is concerned, to my knowledge, to the best of my recollection nearly Rs. 1000 crores has been allotted on the S&T factor in so far as the universities which go in for R & D are concerned. But the finer details in terms of percentages, I shall send across to the hon. Member, as soon as I collect them. But actually it does not come within the scope of this question.

SHRI TRILOKI NATH CHATURVEDI : Sir, I thought that the financial support extended to the universities by the Department of Science and Technology falls within the ambit of Research and Development for the public sector and that is above and beyond the extended financial support given by the Ministry of Human Resource Development or by the University Grant Commission.

SHRI P. R. KUMARAMANGALAM : Mr. Chairman, Sir, I would like to clarify that when one talks of industrial investment, public and private, I don't think that I could consider university as an industry. ...*(Interruptions)*...

SHRI TRILOKI NATH CHATURVEDI : I have not said that university is an industry. I am only saying Research and Development in public sector does include the financial assistance given by the Department of Science and Technology to the universities. Am I correct in this or not ? Is this presumption correct or not ?

SHRI P. R. KUMARAMANGALAM : Yes, if you are looking at it from the point of view of public sector, actually financing R & D in unversities, I would agree. But what DST gives to universities in terms of Research and Development that they do, is not treated as part of investment by public sector because that is Government-funded investment. ...*(Interruptions)*...

SHRI TRILOKI NATH CHATURVEDI : Sir, the question is : What is the share of R & D out of the total investment in both public and private sectors ?

SHRI P. R. KUMARAMANGALAM : I could not hear that.

...*(Interruptions)*...

SHRI TRILOKI NATH CHATURVEDI : Mr. Chairman, Sir, you had also been Vice-Chancellor of a very prestigious university. You are the Chancellor of ...*(Interruptions)*...

MR. CHAIRMAN : I can only say, it is precious little.

SHRI S. JAIPAL REDDY : Mr. Chairman, Sir, while I agree with those hon. Members who made out a case for greater percentage of expenditure on R & D, I would like to draw the attention of the Minister to the fact that such little expenditure that is being incurred on this is not done in a genuine way. Various studies have brought out the fact that these expenditures are shown to have been incurred with a view to availing of income tax exemption provisions and with a view to siphoning off the funds. Is the Minister aware of the results of these studies ? If so, what steps will the Ministry take to see that these loopholes are plugged ?

SHRI P. R. KUMARAMANGALAM : Mr. Chairman, Sir, I do believe that the hon. Member has made a bit of a sweeping statement. There are a few instances where a certain amount of misuse of the various fiscal incentives that have been given to industry to invest in R&D has taken place. We have taken strong steps to monitor, to ensure that we are able to see what is the product that comes out of the investment that they have made in R&D and we have developed a policy by which we actually ask the industry that if they spent a rupee, how much of the rupee that they spent on R&D has contributed towards the industrial turn over increase that they may have. We actually check it up. There have been cases where we have withdrawn approvals to the R&D units on the ground that there has been really no contribution on their industrial

turn over increase for the R&D investment they claimed to have made and got exemptions. We are definitely aware of the possibility of the misuse. We are carefully monitoring every individual case.

SHRI GURUDAS DASGUPTA : Sir, it is quite clear from the answer given by the hon. Minister that our spending on R&D is quite small in comparison to the spending on R & D in the other parts of the world. This problem of less spending on R & D should be viewed in the background of the growing problem of absolescence of India's technology. This can be remedied by import of technology or by improvement of India's own technology ? Since our spending on R&D has been lagging behind the necessity, what steps does the Government contemplate in the background of India's backward technology ? What steps does the Government propose to take to improve the spending and to ensure that the problem of obsolescence can be tackled by India's own R&D development ?

SHRI P. R. KUMARAMANGALAM : Mr. Chairman, Sir, the hon. Member is right in bringing to the notice of this House that the amount of investment that we are making in R & D is not really indicative of a nation of our size with its skilled man-power as well as its growing, developing, potential. Sir, the fact of the matter is that we have to look at the ratio between the productive enterprises' share in R & D and the Government's share in R & D, in countries like Japan. We will see that in Japan, the Government funding is 19.9 per cent only while the industries' funding is 80.1 per cent. In India, 76.8 per cent of R & D is funded actually by the Government while 23.2 per cent is funded by the industry. I am just showing the reverse situation. One of the reasons why the developed countries have a lot of money available for R & D is this. In the competitive economy, the issue of attrition or obsolescence of technology is very critical for survival itself in the market place. That being so, industrialists actually invest quite a ratio of their turnover in R & D to keep up-to-date technologically. We believe that the New Economic Policy is creating the right environment for industries to come forward and invest. We hope that this situation of competition will cause them to understand that obsolescence of technology or attrition of technology is as important for survival and they would come forward. In the event we find that they do not come forward, there are various thoughts like levying a certain amount of cess, maybe, for the purpose of ensuring that money is available from the industry to invest in those particular sectors. Sir, the policy, the Draft Technology Policy, has proposed various measures which are there before Members of Parliament and the nation for their views and suggestions. It is true that to improve ...*(Interruptions)*... the position, by means of industrial contribution to R & D, an overall increase of cess is proposed.

THE PRIME MINISTER SHRI P. V. NARASIMHA RAO : Sir, as my colleague has given all the answers, very correctly, on that line, there is nothing more to add. But there is one idea which I would like to remind hon. Members about. There is a difference between production and R & D. We have years and years of R & D work. Maybe, large amounts of money were devoted to that ...*(Interruption)*... and still we are not getting any results. This happens all over the world. R & D is a matter of inspiration; sometimes it is a matter of chance, the result of R & D. The point is that a poor country cannot afford all this. We are able to find some money. We will try to find more as we go along. But it all depends on how much a nation can afford. Take cancer, for instance. We have no idea how many billions and billions of dollars have been spent on R & D just to find out if there is any wonder drug which can cure cancer. It has not succeeded so far. It may succeed after the next few years; or, maybe, it will succeed tomorrow. All this is something upon which one stumbles sometimes. But, at the same time, it is an effort which no nation can neglect, at least within its means. This is what we are trying to do. This is an aspect which hon. Members will have to keep in mind. There are laboratories where they take Indian scientists, put them there, no questions asked, write out a cheque, you spend

as much money as you want. We don't ask you whether you have found out anything at all because it is something which cannot be really made to order. R & D is something which has its own flavour, its own characteristic and we have to be conscious of it. So far as the Government is concerned, naturally, we have all the controls, we have all the questions, we have all the answers and whatever we have in Government, we have.

*143. [*The questioners (Shri Ramendra Kumar Yadav 'Ravi' and Shri Ram Gopal Yadav) were absent. For answer, vide col.... infra*]

Public sector undertakings for Defence purposes

*144. SHRI GHUFRAN AZAM : Will the Minister of DEFENCE be pleased to state :

(a) whether it has been directed to procure defence needs from available resources of the Pubilc Sector Undertakings of the Central Government;

(b) whether it is a fact that in spite of earlier Government's decision to utilise installed capacities of certain Public Sector Undertakings for defence purposes, the same has not been done so far; and

(c) if so, the reasons therefor; and steps proposed to be taken in this regard ?

THE MINISTER OF STATE IN THE MINISTRY OF DEFENCE (SHRI MALLIKARJUN) : (a) to (c) It has been the policy of the Government and also the consistent practice to make procurements for the defence forces, as far as possible, from sources within the country in public and private sectors. Imports are resorted to only when the commodities required are not available from indigenous sources. If some capacities in defence public sector undertakings or ordnance factories remain underutilised that is due to (a) limitation of funds and (b) some excess capacities having been deliberately created to respond to surge requirements in emergencies. The Government has now been taking steps to maximise capacity utilisation in its defence production units by catering to demands in the civil sector and in export markets.

श्री गुफरान आजम : सभापति महोदय, मैंने उम्मीद की थी कि कैबिनेट मिनिस्टर जवाब देंगे । पता नहीं क्यों नहीं दिया ।

श्री सुब्रह्मण्यम स्वामी : आपको पता है कैबिनेट मिनिस्टर कौन है?

श्री गुफरान आजम : मैं जानना चाहता हूं कि डिफेंस मिनिस्टरी जो भी परचेज करती है क्या वह सभी पब्लिक सेक्टर से करती है या प्राइवेट सेक्टर से भी करती है ? अगर पब्लिक सेक्टर से नहीं खरीदती है तो उसका क्या कारण है ? क्या वह इस नीति में कुछ बदलाव लायेंगे ?

SHRI MALLIKARJUN : Sir, there are about 46 Central public sector undertakings from where the defence requirements are procured. At the same time, there are 12 State public sector undertakings from where the defence requirements are procured. Apart from this from private sector undertakings also, defence requirements are being procured. For example, from VIPRO, we take computers, from Birla Yamaha, we take portable generators and so on.

श्री गुफरान आजम : मंत्री महोदय से मैं जानना चाहता हूं कि टैफको, एन.टी.सी. और सी.आई.टी. ये सब पब्लिक सेक्टर अंडरटेकिंग्ज हैं और सरकार ने इनकी क्षमता बढ़ाने, के लिए काफी खर्चा भी किया, मजदूरी की संख्या भी बढ़ाई, स्टाफ भी बढ़ाया, मशीनरी भी बढ़ाई, ये अंडरटेकिंग्ज कपड़ा, कम्बल और शूज टाइप की चीजें बनाती हैं तो पिछले दो साल में डिफेंस मिनिस्टरी ने इन पब्लिक सेक्टर अंडरटेकिंग्ज से कितना परसेन्ट सामान खरीदा ? अगर नहीं खरीदा तो क्यों नहीं इसका राज क्या है ।

SHRI MALLIKARJUN : Sir, as I have already informed the august House, we do purchase from the public sector undertakings. It all depends on the need and the availability of funds.

श्री गुफरान आजम : मैंने क्या पूछा और जवाब क्या दिया । यह फंड की बात करते हैं । मैं पूछ रहा हूं आप यह सामान खरीदते हैं हर साल । फार एक्जाम्पल मुझे मालूम है